

## WHAT IS CLAIMED IS:

1. A ball-and-socket joint for motor vehicles, the ball-and-socket joint comprising:  
a joint ball and a pivot pin;  
a housing part formed of a shaped metal tube and formed with a top end with an opening  
5 and an opposite end with a pivot pin opening; and  
molded material molded on said housing portion forming functional surfaces on each of  
an inside and an outside of said housing part.
2. A ball-and-socket joint according to claim 1, wherein said functional surfaces include a  
bearing shell surface on the inside of said housing and a bellows seat surface contour on an  
outside of said housing.
3. A ball-and-socket joint according to claim 2, wherein said bearing shell portion forms  
the entire bearing shell with said joint ball contact surface in contact with substantially all of a  
bearing surface of said joint ball.
4. A ball-and-socket joint according to claim 3, wherein said bearing shell portion  
includes extension segments integral with said bearing shell portion and extending from a region  
of said bearing shell portion molded on said housing portion, said extension segments being  
molded to a shape to form a joint ball end region bearing surface.
5. A ball-and-socket joint according to claim 2, wherein said bearing shell portion forms

only a portion of said joint ball contact surface in contact with only a portion of a bearing surface of said joint ball.

6. A ball-and-socket joint according to claim 3, further comprising: a bearing shell insert inserted in said housing portion adjacent to said bearing shell portion, said bearing shell insert having a joint ball bearing surface and cooperating with said bearing shell portion for bearing contact with said joint ball.

7. A ball-and-socket joint according to claim 4, further comprising an end cap wherein said housing part is formed as a shaped metal tube with the top end having an opening and said end cap closes said opening.

8. A ball-and-socket joint according to claim 1, wherein said functional surfaces on each of said inside and said outside of said housing part are formed of one molded part wrapping around an edge of said housing part.

9. A ball-and-socket joint according to claim 8, wherein said functional surfaces on each of said inside and said outside of said housing part formed of one molded part wrapping around said edge of said housing part also connect to each other through one or more molded in ties integral in said molded part, said ties passing through one or more holes in said housing part.

10. A process for forming a ball-and-socket joint comprising:

providing a ball pivot with a joint ball and a pivot pin;

forming a housing portion of a stamped metal piece formed with a top end and an

opposite end with a pivot pin opening;

5 positioning the housing portion at least partially in a mold space; and

injecting material into the mold space and forming a molded part on the housing portion,  
the molded part having functional surfaces on each side of said housing portion.

11. A process for forming a ball-and-socket joint according to claim 10, wherein said functional surfaces include one or more of a boot groove surface contour on an outside of said housing portion, an opening portion for said pivot pin opening and a bearing shell portion with a joint ball contact surface.

12. A process according to claim 10, wherein said bearing shell portion forms the entire bearing shell with said joint ball contact surface in contact with substantially all of a bearing surface of said joint ball.

13. A process according to claim 12, wherein said bearing shell portion includes extension segments integral with said bearing shell portion and extending from a region of said bearing shell portion molded on said housing portion, said extension segments being molded to a shape to form a joint ball end region bearing surface.

14. A process according to claim 10, wherein said bearing shell portion forms only a

portion of said joint ball contact surface in contact with only a portion of a bearing surface of said joint ball.

15. A process according to claim 14, further comprising: a bearing shell insert inserted in said housing portion adjacent to said bearing shell portion, said bearing shell insert having a joint ball bearing surface and cooperating with said bearing shell portion for bearing contact with said joint ball.

16. A process according to claim 10, wherein said functional surfaces on each side of said housing portion are formed of one molded part wrapping around an edge of said housing portion.

17. A process according to claim 16, wherein said functional surfaces on each side of said housing portion formed of one molded part wrapping around said edge of said housing portion also connect to each other through one or more molded in ties integral in said molded part, said ties passing through one or more holes in said housing portion.

18. A process according to claim 13, wherein said top end of said housing is closed by an end cap pressed against said extension segments, said end cap being pressed against said extension segments to such a degree that a torque required to rotate said ball pivot in said molded part as measured during pressing of said end cap against said extensions reaches a preset value.

20. A process for forming a ball-and-socket joint comprising:

providing a ball pivot with a joint ball and a pivot pin;

forming a housing portion with a top end with an opening and an opposite end with a pivot pin opening;

5        forming a molded part having a main bearing portion for the joint ball and extension segments integral with the main bearing portion and extending from a region of the main bearing portion, said extension segments being molded to a shape to form a joint ball end region bearing surface;

providing the molded part in the housing; and

10        closing the top end with an end cap and with the end cap pressing the segments into a bearing surface in contact with said joint ball end region.

21. A process according to claim 20, wherein said step of providing the molded part includes positioning the housing portion at least partially in a mold space and injecting material into a mold space to provide said step of forming the molded part on the housing part.

22. A process for forming a ball-and-socket joint according to claim 20, wherein said mold part has additional functional surfaces.

23. A process according to claim 20, wherein said bearing shell portion forms the entire bearing shell with said joint ball contact surface in contact with substantially all of a bearing surface of said joint ball.

24. A process according to claim 20, wherein a torque required to rotate said ball pivot in said molded part is measured during said pressing of said end cap and said pressing is performed until a preset torque is reached.

25. A process according to claim 20, wherein ribs are formed on an interior surface of said housing portion during said forming of said housing, and said ribs form an interference fit with said molded part when said molded part is provided in the housing, said interference fit preventing a rotation of said molded part within said housing.

26. A process according to claim 20, wherein ribs are formed on an exterior surface of said housing portion during said forming of said housing, and said ribs form an interference fit with a component in to which the ball-and-socket joint is mounted, said interference fit preventing a rotation of the ball-and-socket joint housing relative to the component.

27. A process according to claim 20, wherein said housing comprises a folded area, and said folded area is crimped onto said molded part after said molded part is provided in the housing, said crimping preventing a rotation of said molded part relative to said housing and preventing a removal of said molded part from said housing.

28. A ball-and-socket joint for motor vehicles, the ball-and-socket joint comprising:  
a joint ball and a pivot pin;  
a housing part formed of a shaped metal tube and formed with a top end with an opening,

an opposite end with a pivot pin opening and ribs on an inner surface of said housing; and

5        a molded part forming functional surfaces for functioning with said joint ball, said  
molded part being fit in said housing with said ribs forming an interference fit with said molded  
part, said interference fit preventing rotation of said molded part within said housing.

29. A ball-and-socket joint according to claim 28, further comprising:

a folded area of said housing, said folded area being folded onto said molded part,  
crimping said molded part to said housing preventing a rotation of said molded part relative to  
said housing.